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## ABSTRACT

A compressor includes first-stage and second-stage impellers arranged back-to-back such that fluid is discharged from the first-stage impeller into a generally annular interstage duct that conducts the fluid into the second-stage impeller and the fluid discharged from the second-stage impeller enters into a volute that is arranged generally concentrically within the interstage duct. A discharge duct from the volute passes through the interstage duct at one circumferential location. An array of non-axisymmetric deswirl vanes is arranged upstream of the second-stage impeller. One of the vanes is thick and envelops the discharge duct. The remaining vanes are thinner and are differently configured about the circumference of the vane array to account for the flowfield effects of the thick vane.